

At line 4 of the insert, insert --now abandoned,-- after "October 21, 1994,".

At page 4, line 1, after "and host cells." insert --The present invention provides cytotoxin polypeptides that exhibit substantially no toxicity, or substantially reduced toxicity. The present invention also provides CAI and heat shock polypeptides that exhibit no functional contribution to toxicity, or a substantially reduced functional contribution to toxicity.--

At page 53, line 8, after "EFKNGKNKDFSK" insert --(SEQ ID NO:9)--.

At page 53, line 8, after "EPYIA" insert --(SEQ ID NO:10)--.

At page 60, line 22, delete "thenpresent" and insert --the presence--.

At page 60, line 23, delete "pylor" and insert --pylori--.

Please insert the enclosed sheet entitled "Abstract" after the claims.

Please append to the end of the specification the enclosed substitute Sequence Listing (pages 1 - 19).

IN THE CLAIMS:

Please cancel, without prejudice, claims 43, 46, 49, 52, 55, and 58, amend claims 38 - 40, 42, 44, 45, 47, 48, 50, 51, 53, 54, 56, 57, and 59 - 65, and add new claims 66 - 70 as follows.

38 (Amended). A purified [protein] polypeptide of the *Helicobacter pylori* cytotoxin associated immunodominant (CAI) antigen.

39 (Amended). The purified [protein] polypeptide of claim 38 wherein said [protein] polypeptide is recombinantly produced.

40 (Amended). A purified [protein] polypeptide of the *Helicobacter pylori* [cytotoxin associated immunodominant (CAI)] antigen compris[es]ing [the amino acid sequence set forth in] SEQ ID NO:5.

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41 (Amended).

The purified [protein] polypeptide of claim 40 wherein said [protein] polypeptide is recombinantly produced.

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Sub D1
42 (Amended).

A purified polypeptide [sequence] of the *Helicobacter pylori* [cytotoxin associated immunodominant (JCAI)] antigen, which polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to [*Helicobacter pylori*] *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.

Sub D2
44 (Amended).

The polypeptide [sequence] of claim 42 which comprises [about five to] at least about fifteen amino acids.

13
45 (Amended).

A purified polypeptide [sequence] of the *Helicobacter pylori* [cytotoxin associated immunodominant (JCAI)] antigen [amino acid sequence] set forth in SEQ ID NO:5, which polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.

Sub D3
47 (Amended).

The polypeptide [sequence] of claim 45 which comprises [about five to] at least about fifteen amino acids.

14
48 (Amended).

A prophylactic or therapeutic vaccine comprising an immunologically effective amount of a purified polypeptide [sequence] of the *Helicobacter pylori* [cytotoxin associated immunodominant (JCAI)] antigen, which

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Sub 33012
polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.

Sub 33012
50 (Amended).

The vaccine of claim 48 wherein said polypeptide [sequence] comprises [about five to] at least about fifteen amino acids.

15-
51 (Amended).

The vaccine of claim 48 [which] further [comprises] comprising an immunologically effective amount of a second polypeptide [sequence] of the *Helicobacter pylori* heat shock protein, which second polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.

Sub 33012
53 (Amended).

The vaccine of claim 51 wherein said second polypeptide [sequence] comprises [about five to] at least about fifteen amino acids.

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54 (Amended).

A prophylactic or therapeutic vaccine comprising an immunologically effective amount of a purified polypeptide [sequence] of the *Helicobacter pylori* [cytotoxin associated immunodominant (ICAI)] antigen [amino acid sequence] set forth in SEQ ID NO:5, which polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no

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~~functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.~~

Sub DS C 7
56 (Amended). The vaccine of claim 54 wherein said polypeptide [sequence] comprises [about five to] at least about fifteen amino acids.

57 (Amended). The vaccine of claim 54 [which] further [comprises] comprising an immunologically effective amount of a second polypeptide [sequence] of the *Helicobacter pylori* heat shock protein [amino acid], which second polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.

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59 (Amended). The vaccine of claim 57 wherein said second polypeptide [sequence] comprises [about five to] at least about fifteen amino acids.

60 (Amended). A method of [preparation of] preparing a prophylactic or therapeutic vaccine [which comprises] comprising bringing into association:
(1) an immunologically effective amount of a purified polypeptide [sequence] of the *Helicobacter pylori* [cytotoxin associated immunodominant (JCAI)] antigen, which polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity, and
(2) a pharmaceutically acceptable carrier.

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D7.2
done

61 (Amended). The method of claim 60 [which] further [comprises] comprising adding an immunologically effective amount of a second polypeptide [sequence] of the *Helicobacter pylori* heat shock protein, which second polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.

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62 (Amended). A method of [preparation of] preparing a prophylactic or therapeutic vaccine which [comprises] comprising bringing into association:
(1) an immunologically effective amount of a purified polypeptide [sequence] of the *Helicobacter pylori* [cytotoxin associated immunodominant ([CAI]) antigen [amino acid sequence] set forth in SEQ ID NO:5, which polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity, and
(2) a pharmaceutically acceptable carrier.

63 (Amended). The method of claim 62 [which] further [comprises] comprising adding an immunologically effective amount of a second polypeptide [sequence] of the *Helicobacter pylori* heat shock protein, which second polypeptide [sequence]: (i) comprises at least [five] about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits no functional contribution to toxicity, or a substantially [no] reduced functional contribution to toxicity.

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64 (Amended). A method of [treatment of] treating an individual infected with *Helicobacter pylori* comprising administering an immunologically effective amount of the vaccine [as defined in] of claim 48.

65 (Amended). A method of [treatment of] treating an individual infected with *Helicobacter pylori* comprising administering an immunologically effective amount of the vaccine [as defined in] of claim 51.

66 (New). The purified polypeptide of claim 42, wherein said polypeptide is recombinantly produced.

67 (New). The ~~purified~~ polypeptide of claim 42, wherein said polypeptide comprises the sequence of SEQ ID NO:5

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68 (New). The purified polypeptide of claim 45, wherein said polypeptide is recombinantly produced.

69 (New). The ~~purified~~ polypeptide of claim 45, wherein said polypeptide comprises the sequence of SEQ ID NO:5

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70 (New). The vaccine of claim 48, further comprising an immunologically effective amount of a second polypeptide, wherein said second polypeptide is of the *Helicobacter pylori* cytotoxin (CT) protein, and (i) comprises at least about ten amino acids, (ii) can be used to induce the production of antibodies to *Helicobacter pylori*, and (iii) exhibits substantially no toxicity, or substantially reduced toxicity.